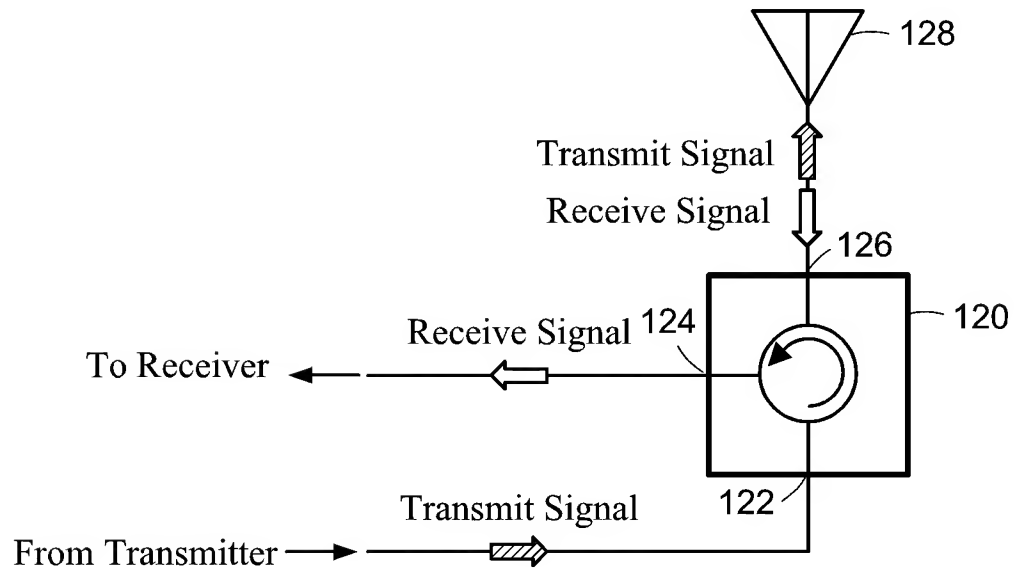
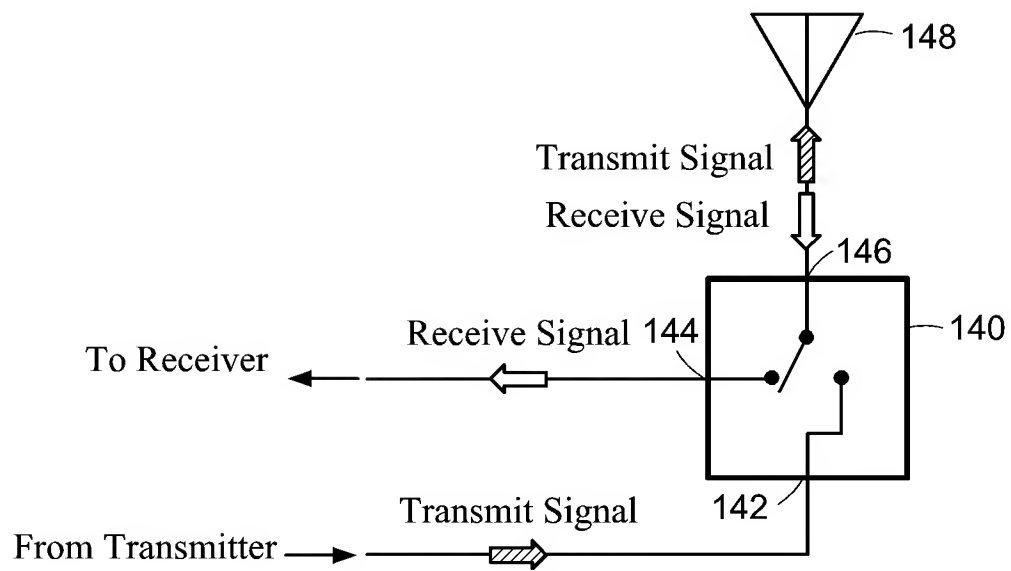


**FIG. 1A**  
PRIOR ART



**FIG. 1B**  
PRIOR ART



**FIG. 1C**  
PRIOR ART

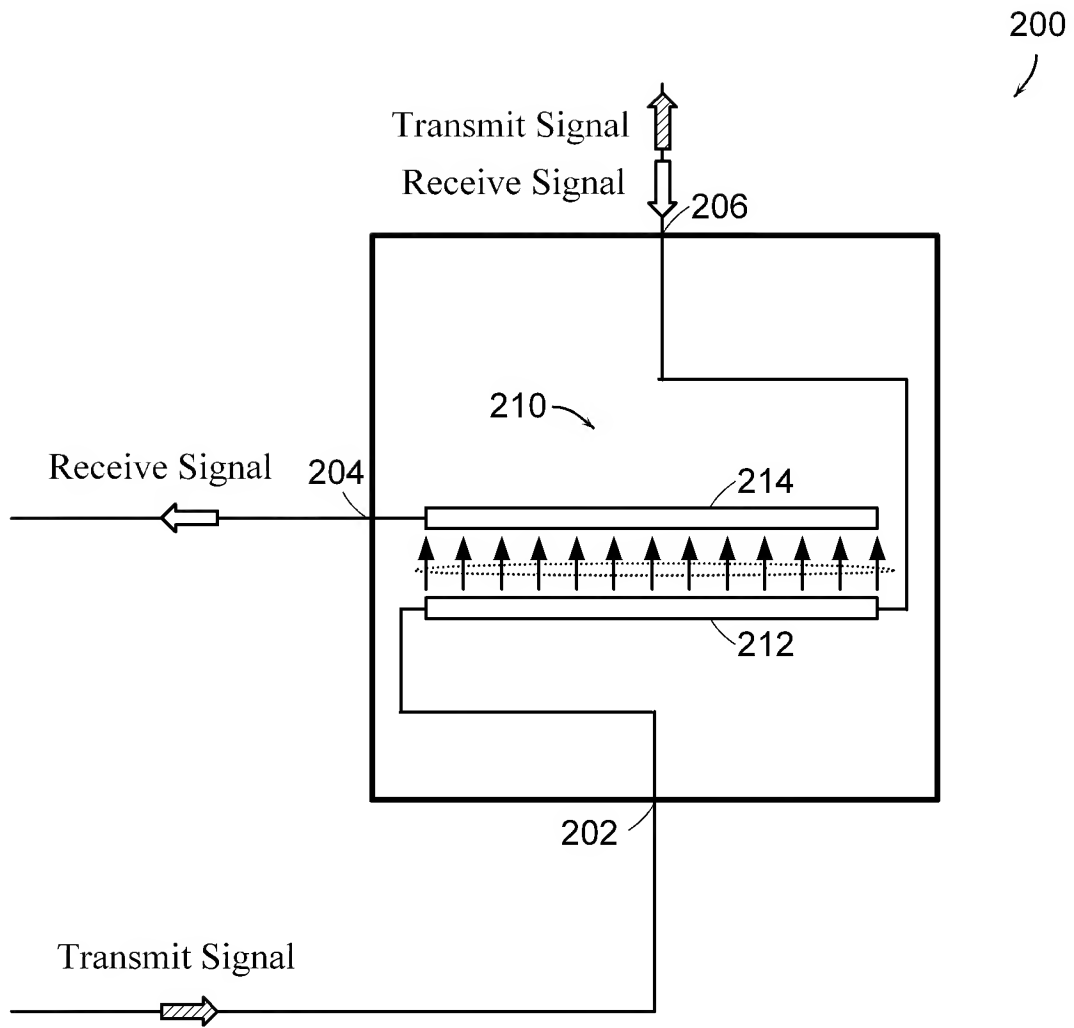


FIG. 2A

250 ↗

Port-to-Port Connection	Desired Coupling Efficiency	Mechanism
Input to bi-directional	High	Direct connection
Bi-directional to input	Do not care	
Output to bi-directional	Low	Non-reciprocal coupling
Bi-directional to output	High	
Input to output	Low	Traveling wave waveguides
Output to input	Low	

FIG. 2B

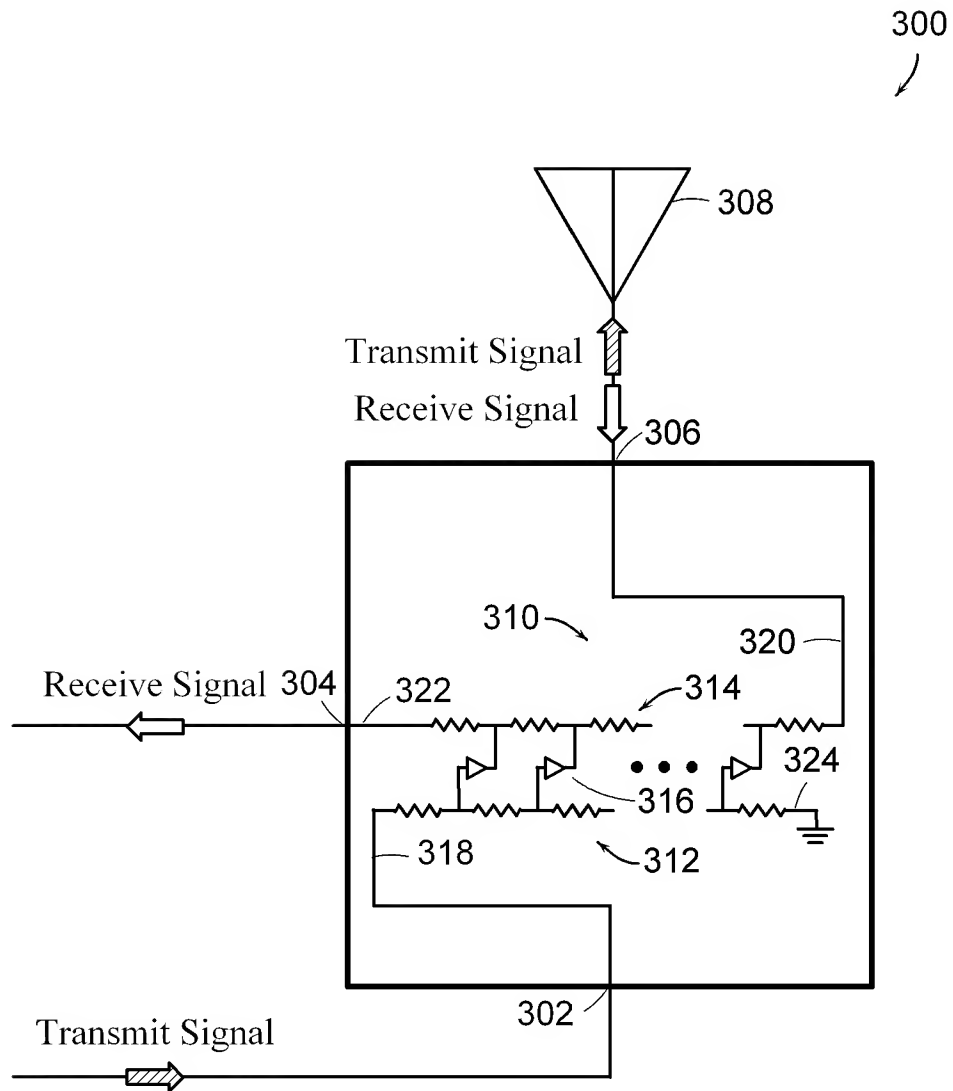


FIG. 3A

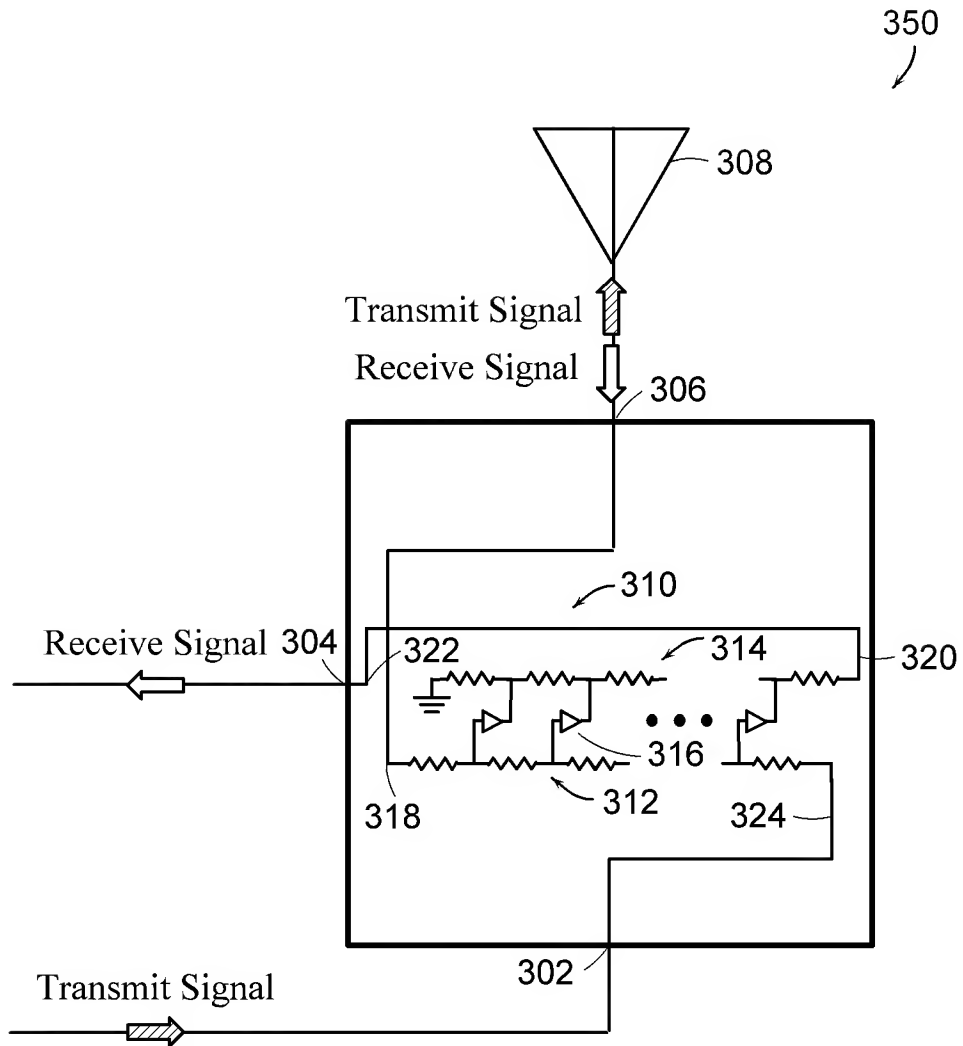


FIG. 3B

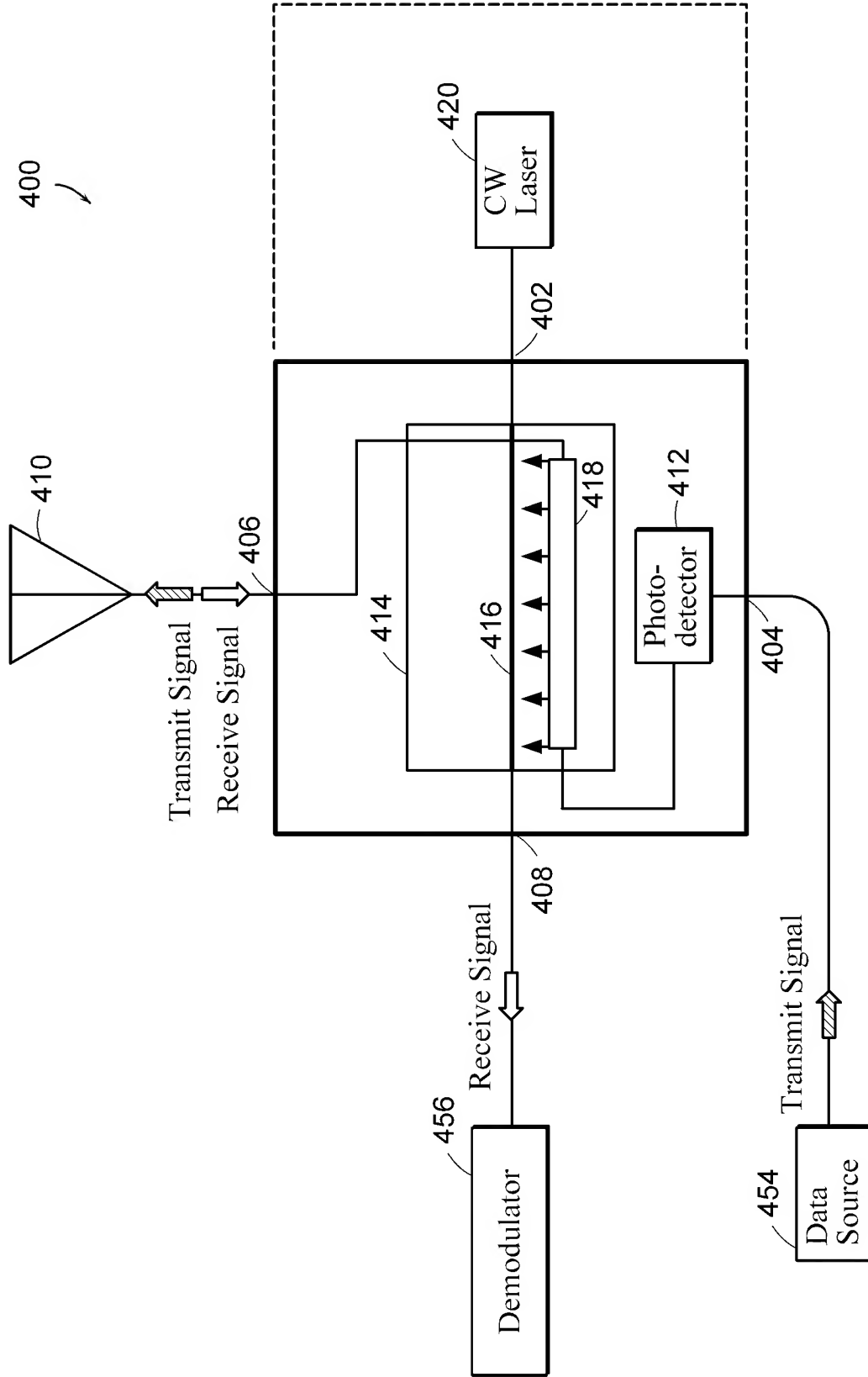


FIG. 4A

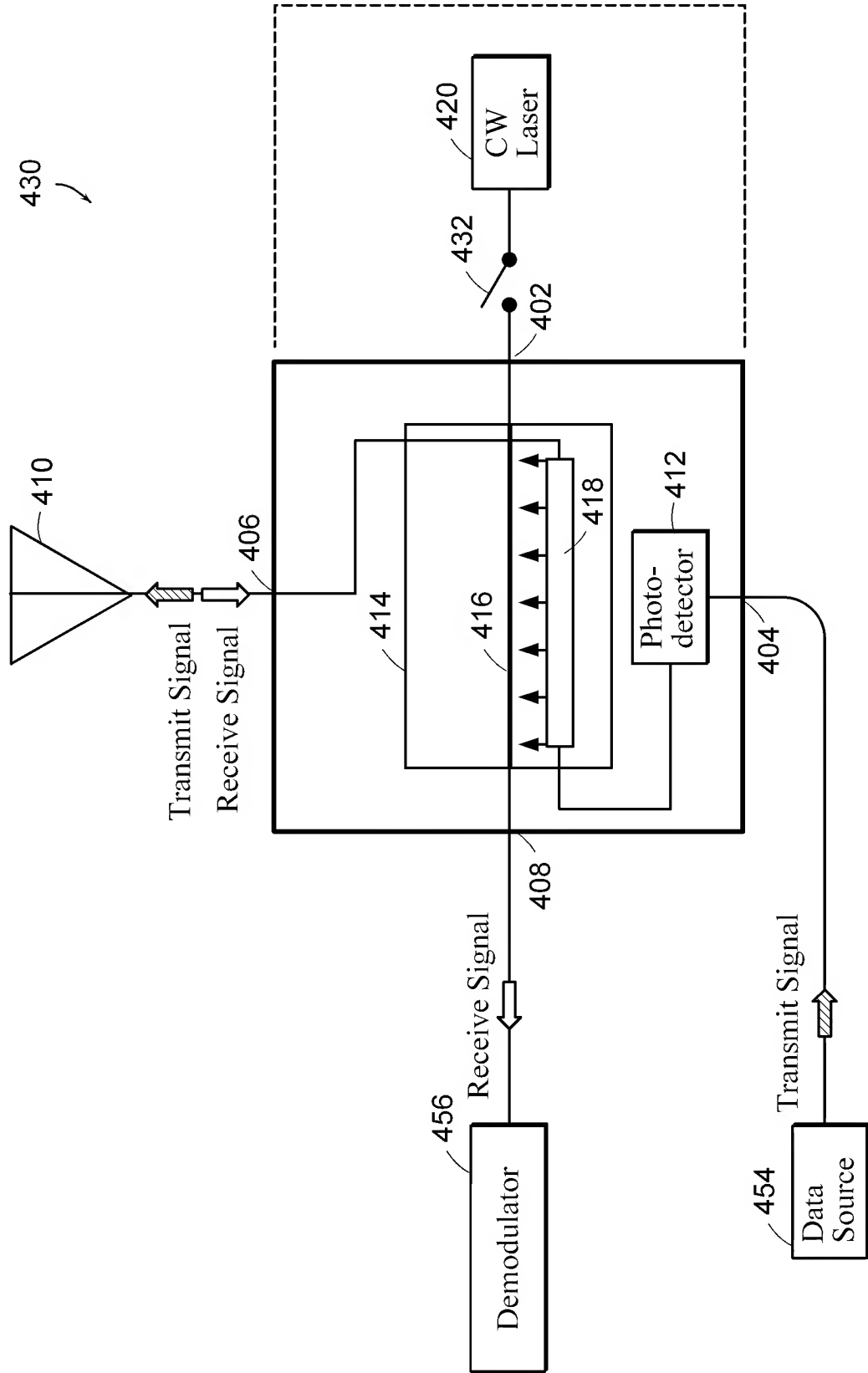


FIG. 4B



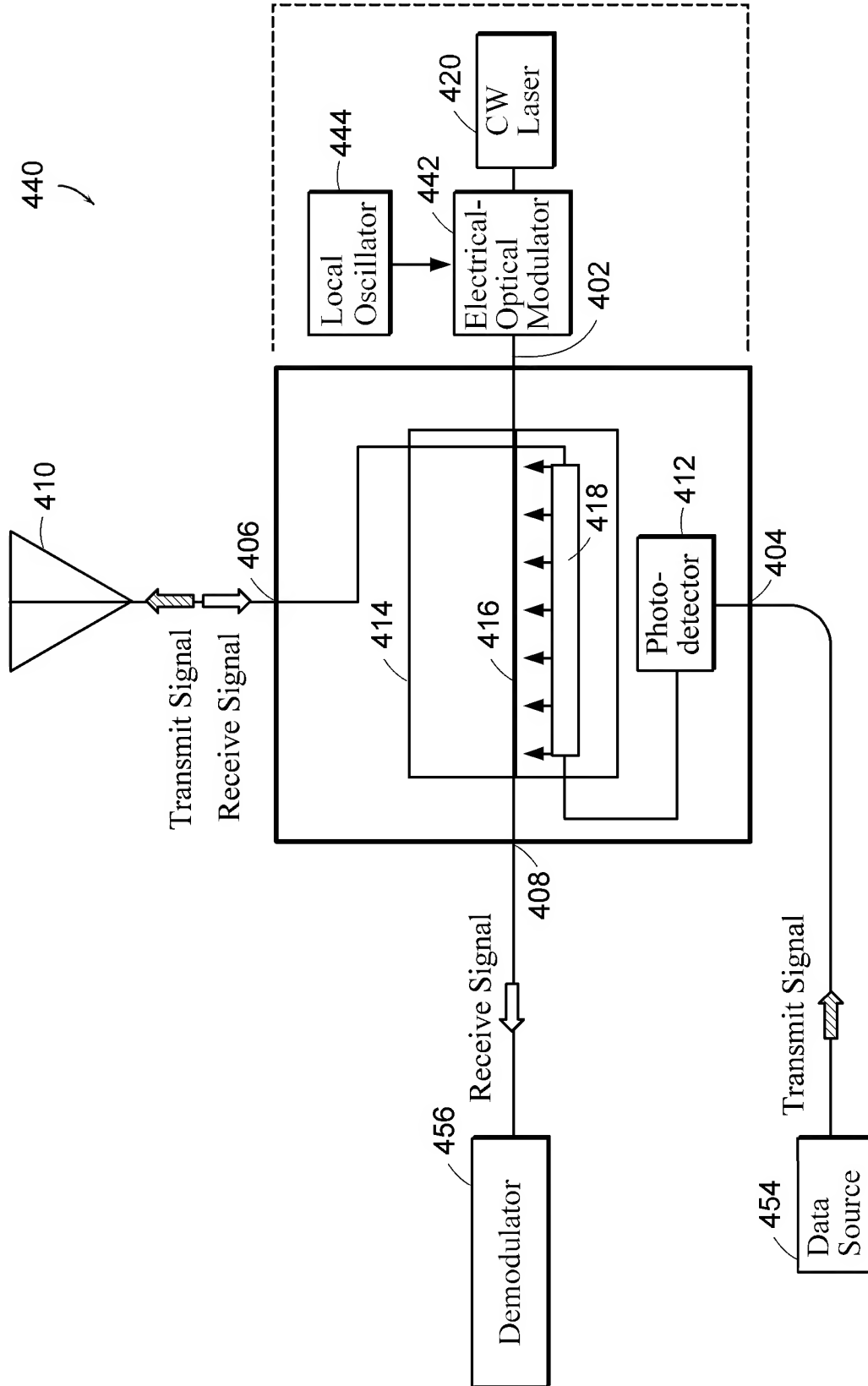


FIG. 4C

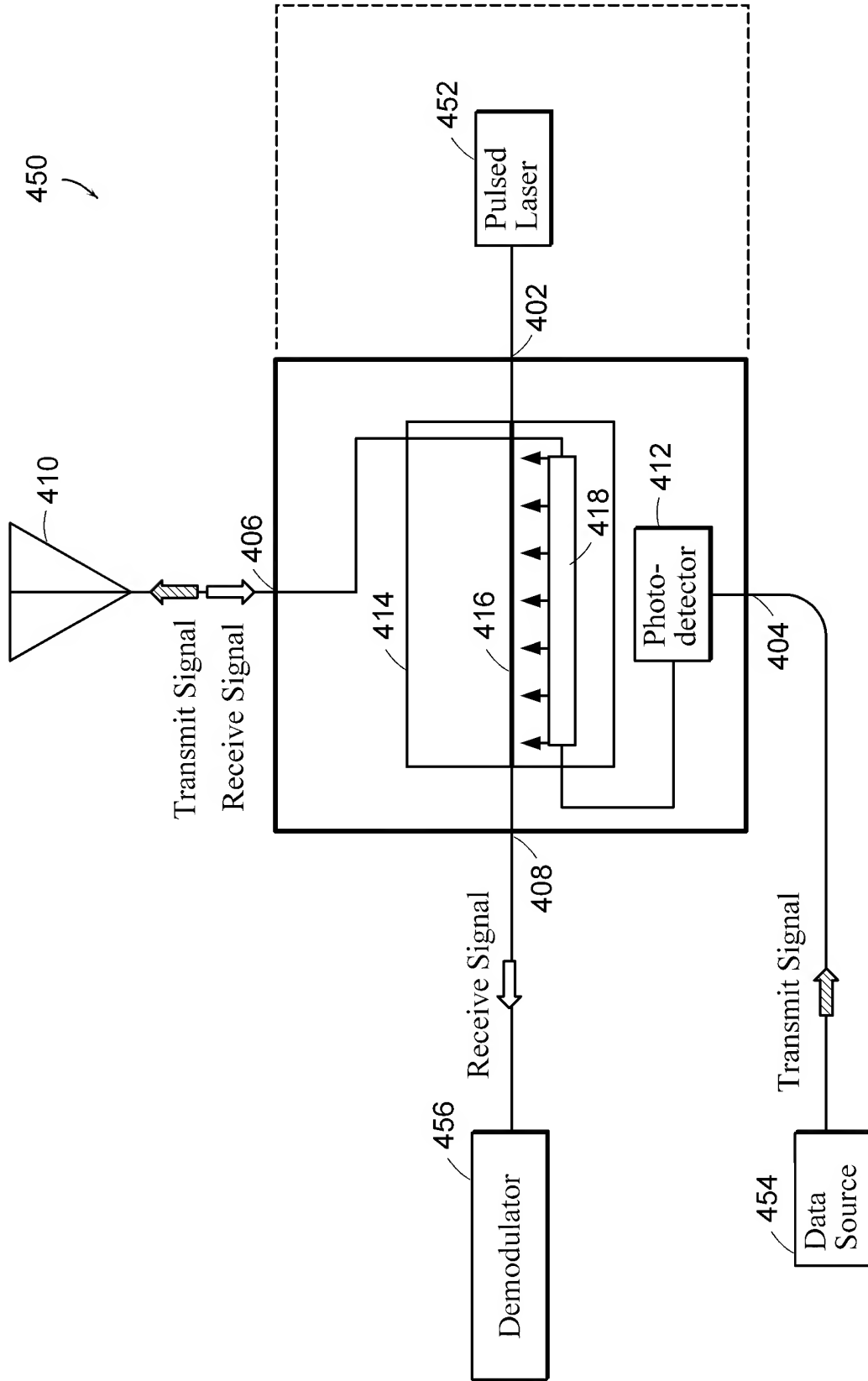


FIG. 4D

460 )

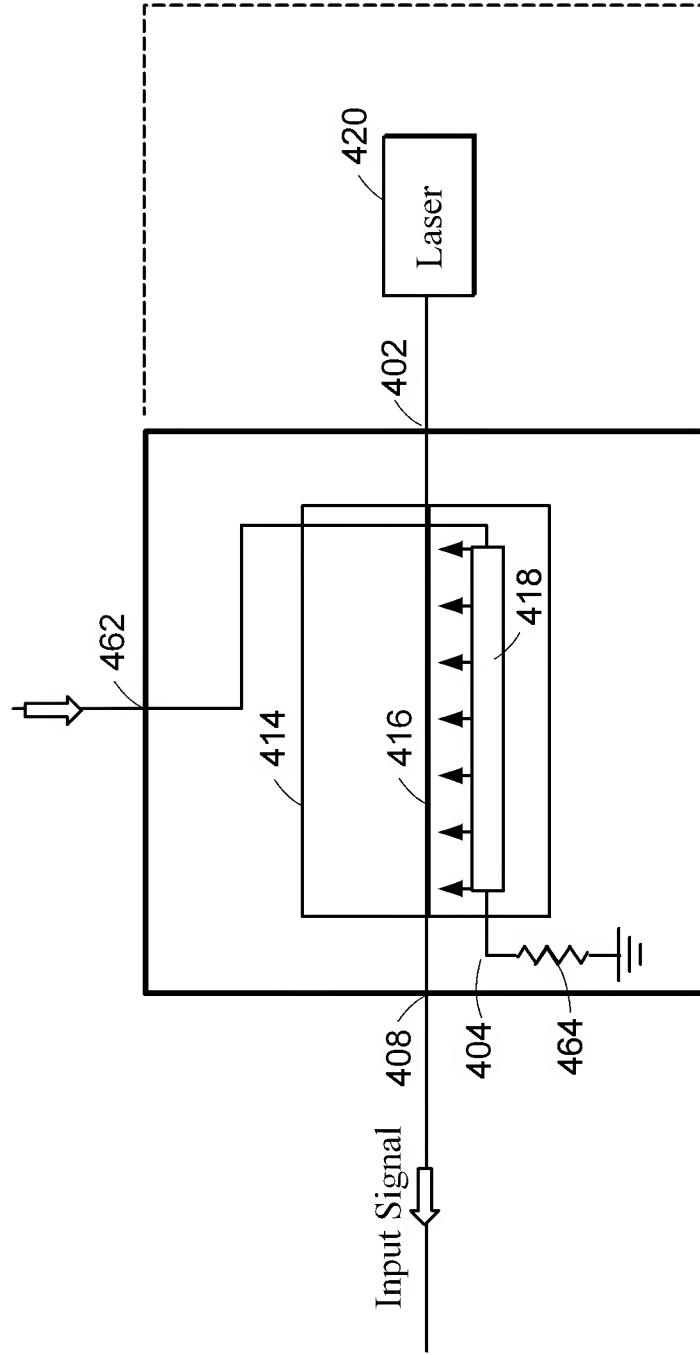


FIG. 4E

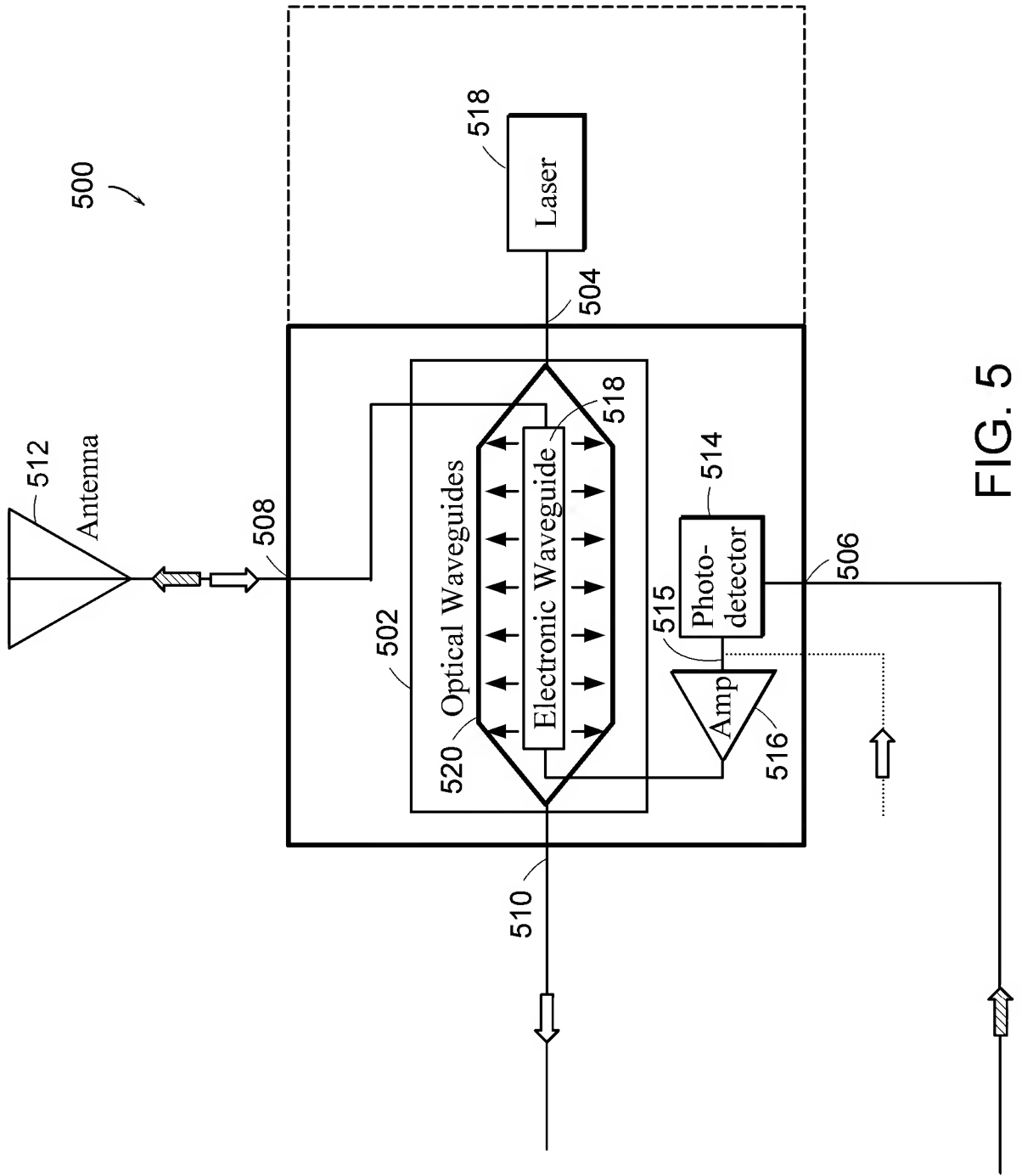


FIG. 5

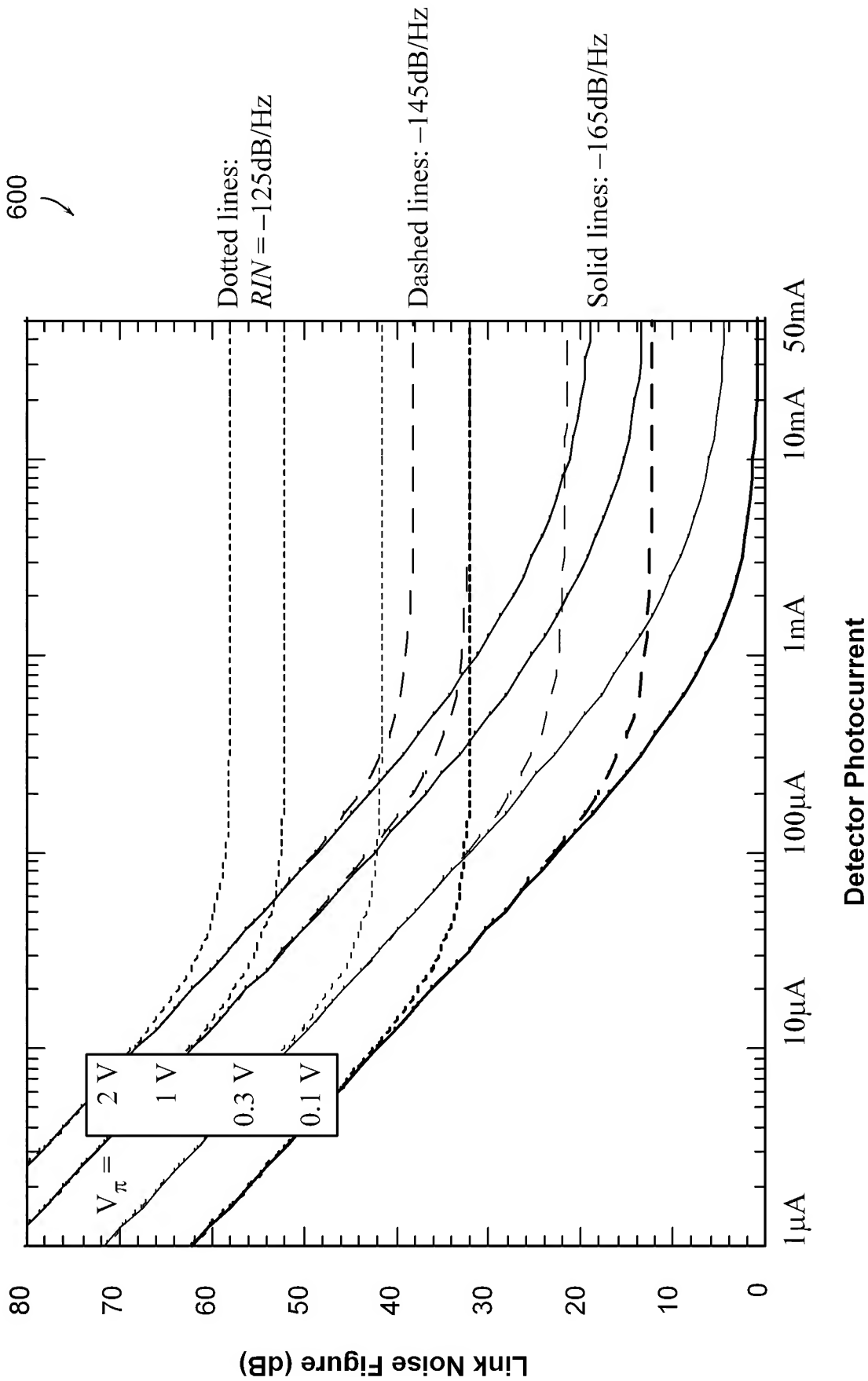


FIG. 6

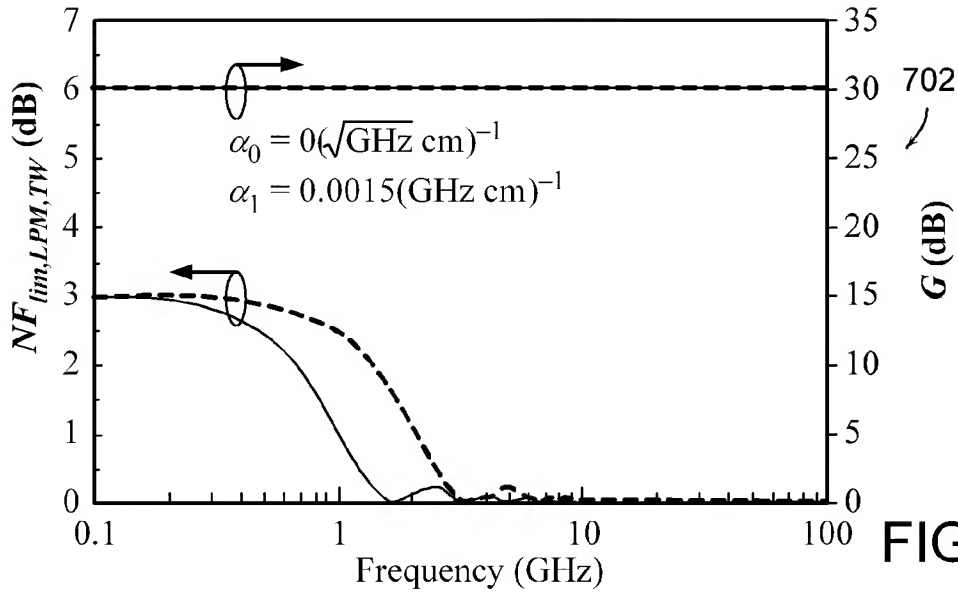


FIG. 7A

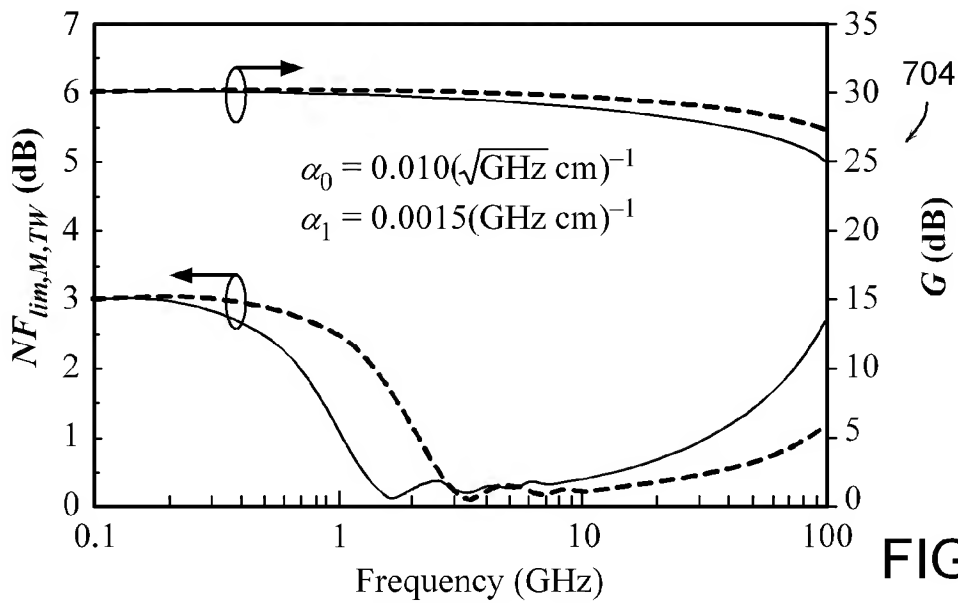


FIG. 7B

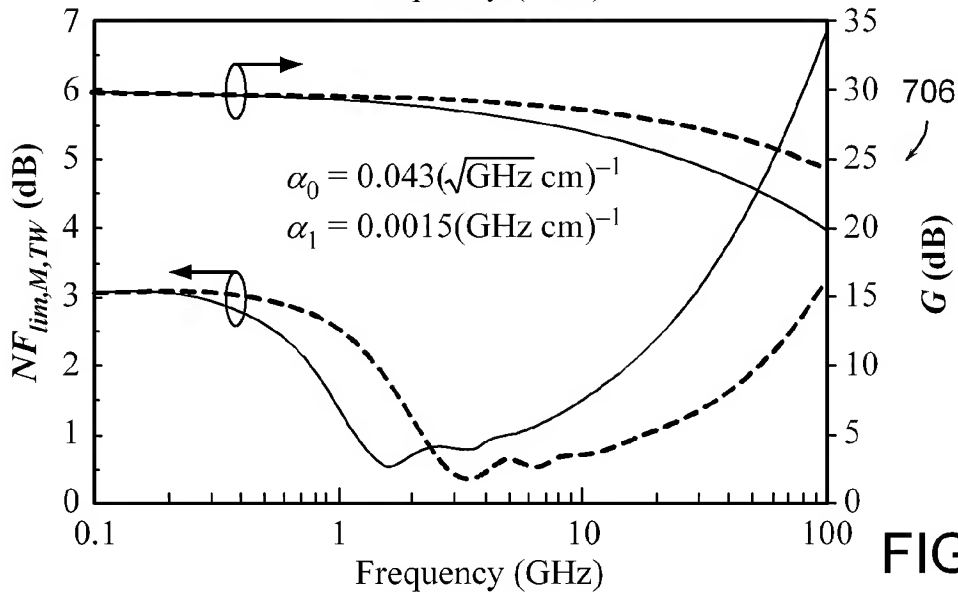


FIG. 7C